NAS710389
NASA-JPL
SSIC No. 9661

ANNUAL SOIL VAPOR MONITORING REPORT
OPERABLE UNIT 2

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JET PROPULSION LABORATORY
PASADENA, CALIFORNIA

EPA ID#CA9800013030

PREPARED FOR:

National Aeronautics and Space Administration
Management Office, Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, California 91109

March 2006

Contents

Appendices

Tables

Figures

amsl	above mean sea level
bgs	below ground surface
cc	cubic centimeter
CCl_4	carbon tetrachloride
CDHS	California Department of Health Services
CRWQCB	California Regional Water Quality Control Board
DCE	dichloroethene
GC	gas chromatograph
Freon 113	1,1,2-trichloro-1,2,2-trifluoroethane
JPL	Jet Propulsion Laboratory
NA	not applicable
NASA	National Aeronautics and Space Administration
ND	not detected
NS	not sampled
OD	outside diameter
OU	operable unit
PQL	practical quantitation limit
QA/QC	quality assurance/quality control
RI	remedial investigation
ROD	Record of Decision
SVE	soil vapor extraction
TCE	trichloroethene
U.S. EPA	United States Environmental Protection Agency
VOC	volatile organic compounds

1.0 INTRODUCTION

This annual soil vapor monitoring report presents the results of four periodic monitoring events completed in February, April, July, and October 2005 at the National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory (JPL) for Operable Unit 2 (OU-2) (on-facility soils). The purpose of this monitoring program is to monitor the horizontal and vertical distributions of volatile organic compound (VOC) vapors in the vadose zone beneath the JPL site.

Four field monitoring events were conducted by GEOFON, Inc. (GEOFON) personnel on February 3, April 19-22, July 12, and October 17-26. The soil vapor extraction (SVE) system was operational at VE-01 from December 2004 through May 2005, and at VE-03 from June 2005 through September 2005. Based on monitoring and performance data collected during the most recent operating cycles at VE-01 and VE-03, as well as the periodic soil vapor monitoring data presented in this report, the remedial action performance objectives stated in the Record of Decision (ROD) have been achieved (NASA, 2006), and the SVE system was temporarily shut down on September 9, 2005. As discussed in the *Remedial Design/Remedial Action Workplan* (GEOFON, 2002c), the October 2005 monitoring event represents the first post-SVE monitoring event, and one additional site-wide monitoring event will be conducted in March/April 2006. The degree of rebound will be evaluated using these data, and if significant rebound occurs, the SVE system will be reinitiated; otherwise, the SVE system will be permanently shut down and dismantled. Details regarding system shutdown and rebound monitoring will be documented in the Remedial Action Report for OU-2.

During the February and April monitoring events, the soil vapor monitoring wells were sampled based on the soil vapor sampling frequency previously developed for the periodic monitoring program. In July, the quarterly sampling event was modified to include those sample points where the chemical concentration measured in any sampling event since August 2003 exceeded the vapor screening level (VSL) (NASA, 2005). A summary of the soil vapor sampling frequency is presented in Table 1-1, and a summary of each periodic monitoring event in 2005 is provided below:

- February (Quarterly event). Soil vapor samples were scheduled to be collected from all available sampling points located in soil vapor monitoring wells No. 2, 4, 10, and 17, and from sampling points 32-155, 33-85, 33-105, 33-120, 34-118, 36-35, 36-55, 37-185, and 39-130. Fourteen (14) depth-specific samples, including two duplicate samples, were collected, and samples were unable to be collected from eleven (11) of the sampling points.

- April (Semi-Annual event). Soil vapor samples were scheduled to be collected from all available sampling points located in soil vapor monitoring wells No. 2, 4, 9, 10, 17, 26, 27, 35, 36, 37, 38, and 39, and from sampling points 32-155, 33-85, 33-105, 33-120, and 34-118. Fifty-two (52) depth-specific samples, including four duplicate samples, were collected, and samples were unable to be collected from forty-one (41) of the sampling points.

- July (Quarterly event). Soil vapor samples were scheduled to be collected from sampling points 3-29, 3-40, 4-20, 4-56, 5-9, 17-24, 25-180, 27-180, 32-180, 32-195, 33-105, 33-140, 39-100, and 39-130. Fifteen (15) depth-specific vapor samples, including two duplicate samples, were collected, and one sample was unable to be collected.

- October (Annual event). Soil vapor samples were scheduled to be collected from all available sampling points located in soil vapor monitoring wells No. 1 through 18, 19A, 20A, 25 through 28, and 30 through 39. However, all soil vapor sampling tips were plugged in monitoring wells No. 8, 13, 14, 16, 17, 18, 20A, and 26, preventing the collection of soil vapor samples from these locations during this event. In addition, samples were unable to be collected from sixty-nine (69) other sampling points which also were plugged. One hundred two (102) depth-specific samples, including eight duplicate samples, were collected during the October annual sampling event.

The locations of all soil vapor monitoring wells are shown on Figure 1-1. All samples collected for these events were analyzed for VOCs using an on-site laboratory operated by H&P Labs, who is certified by the California Department of Health Services (CDHS). The analyses were performed in accordance with United States Environmental Protection Agency (U.S. EPA) Method 8260B and the California Regional Water Quality Control Board (CRWQCB), Los Angeles Region, protocols and guidance.

Sampling procedures are described in Section 2.0, and a summary of all VOCs detected during each of the four soil vapor sampling events, including locations and depths, is contained in Section 3.0. Conclusions are provided in Section 4.0. Soil vapor data validation reports for all samples analyzed during the sampling events are included in Appendix A and summarized in Section 5.0. Cited references are listed in Section 6.0. Laboratory reports for all samples analyzed, along with chain-of-custody forms, are included in Appendix B. The daily calibration verification standards for each day's sampling are also included in Appendix B. Appendix C contains a summary of soil vapor sampling results from all events conducted during the duration of this periodic monitoring program.

A description of the soil vapor well construction procedures was presented in the first long-term soil vapor sampling report prepared for OU-2 (Foster Wheeler Environmental Corporation, 2000a). Soil vapor well construction details are summarized in Table 2-1 of this report.

Soil vapor samples were withdrawn from the soil through sampling tips and 1/8-inch-outside diameter (OD) Nylaflow® tubing using calibrated, gas-tight, 60-cubic-centimeter (cc) sterile syringes fitted with three-way on/off valves. Prior to collecting the soil vapor samples, four volumes of the length of the tubing were purged to flush the tubing and fill it with in-situ vapor. Because each foot of tubing has an internal volume of 1 cc, the total volume purged was easily measured with the calibrated syringes. Following purging, a 60-cc soil vapor sample was collected in the syringe, the valve was turned to the off position, and the sample was immediately transferred to the on-site mobile laboratory for analysis. During sampling, neither water vapor nor condensation was observed in the transparent sampling syringes. Because the purge and sample volumes were small, a vacuum pump was not required to evacuate the tubing or to collected a soil vapor sample. To demonstrate reproducibility of results, a duplicate soil vapor sample was collected and analyzed after every 10 environmental samples. The previous one in five (20%) duplicate sampling regimen was reduced during the twelfth quarter to one in ten (10%) duplicates collected.

The samples were analyzed on-site in a CDHS-certified mobile laboratory (Certification No. 1667) using U.S. EPA Method 8260B and presented in the 8021 format for the parameters listed in Table 2-2. The time between sample collection and analysis was, at most, only a few minutes.

Deviations from the planned sampling due to unidentified blockages in the line below the surface are noted as follows:

- February – Samples were not collected from soil vapor monitoring points No. 2-22, 2-37, 4-11, 4-35, 4-56, 10-20, 10-50, 10-69, 17-12, 17-36, and 34-118.

- April – Samples were not collected from soil vapor monitoring points No. 2-22, 2-37, 4-11, 4-35, 4-56, 10-20, 10-50, 10-69, 17-12, 17-36, 26-20, 26-35, 26-55, 26-80, 26-100, 26-180, 26-195, 27-160, 34-118, 35-20, 35-50, 35-60, 35-95, 35-110, 35-125, 35-140, 35-155, 37-25, 37-60, 37-120, 37-140, 38-25, 38-45, 38-65, 38-95, 38-125, 38-140, 38-155, 39-35, 39-70, and 39-120.

- July – A sample was not collected from soil vapor monitoring point No. 4-56.

- October – Due to an unidentified blockage in the line below the surface, samples were not collected from several monitoring points scheduled to be sampled during this annual event, including all monitoring points at soil vapor wells No. 8, 13, 14, 16, 17, 18, 20A, and 26, as well as other monitoring points as indicated in Section 3.0 (Table 3-4).

The results from the previous remedial investigation (RI) for OU-2 (Foster Wheeler Environmental Corporation, 1999) indicated that four VOCs were more frequently detected in soil vapor samples at elevated concentrations relative to other VOCs. These four VOCs are carbon tetrachloride (CCl_4), 1,1,2-trichloro-trifluoroethane (Freon 113), trichloroethene (TCE), and 1,1-dichloroethene (1,1-DCE). These four compounds also were the most frequently detected VOCs during the four periodic monitoring events conducted in 2005. The following discussion summarizes the data obtained during these four monitoring events.

CCl_4 was detected six times in four different soil vapor monitoring locations at concentrations ranging from 1.0 to 2.3 µg/L-vapor. Detections of CCl_4 were identified at soil vapor monitoring wells No. 3 at 29 and 40 ft, No. 27 at 180 ft, and No. 33 at 120 ft. Freon 113 was detected four times in two different soil vapor monitoring locations at concentrations ranging from 2.2 to 3.3 µg/L-vapor. Detections of Freon 113 were identified at soil vapor monitoring wells No. 10 at 35 ft, No. 38 at 170 ft, and No. 39 at 100 ft.

TCE was the most frequently detected compound. It was detected seven times in two different soil vapor monitoring locations at concentrations ranging from 1.9 to 19 µg/L-vapor. Detections of TCE were identified at soil vapor monitoring wells No. 4 at 20 ft, No. 38 at 170 ft, and at No. 39 at 100 ft. 1,1-DCE was detected twice at one soil vapor monitoring location at concentrations of 1.3 and 1.8 µg/L-vapor. Detections of 1,1-DCE were identified at soil vapor monitoring well No. 33 at 120 ft.

Other detections include the following:

- Chloroform at concentrations of 92 and 81 µg/L in soil vapor monitoring well No. 27 at 20 and 35 ft, respectively, during the April monitoring event.
- Chloroform at concentrations of 44 µg/L, 59 µg/L, and 4.0 µg/L in soil vapor monitoring well No. 27 at 20, 35, and 60 ft, respectively, during the October monitoring event; and
- Toluene (9.1 µg/L) in soil vapor monitoring well No. 17 at 24 ft during the April monitoring event.

A summary of the analytical results for all samples collected during the four periodic monitoring events conducted in 2005 is presented in Tables 3-1 through 3-4, and the analytical laboratory reports are presented in Appendix B-1. Chain-of-custody forms are included in Appendix B-2. Daily opening, closing, and continuing calibration reports are included in Appendix B-3. Data from all periodic monitoring events conducted to date have been tabulated and are presented in Appendix C. Location maps for soil vapor monitoring wells with detections at depth for CCl_4, Freon 113, TCE, and 1,1-DCE are shown in Figures 3-1 through 3-4, respectively. Total VOC concentrations for soil vapor monitoring wells where chemicals were detected are presented in Figure 3-5.

4.0 CONCLUSIONS

The following conclusions are based on the results of the soil vapor sample laboratory analyses obtained from the four monitoring events conducted in 2005.

- TCE was the most frequently detected compound, being detected in 7 of 169 samples (not including duplicate analyses).

- TCE concentrations appear to be generally decreasing. For example, the TCE concentration was 19 µg/L-vapor in February, 18 µg/L-vapor in April, 11 µg/L-vapor in July, and 9.5 in October at soil vapor monitoring well No. 4 at 20 ft; and in soil vapor monitoring well No. 39 at 100 ft the concentration was 3.7 µg/L-vapor in April, 2.5 µg/L-vapor in July, and 1.9 µg/L-vapor in October.

- Based on the results of soil vapor samples collected during the 2005 period, VOC concentrations generally continue to decline throughout the site.

5.0 QUALITY ASSURANCE AND QUALITY CONTROL

This section briefly summarizes the quality assurance and quality control (QA/QC) procedures followed during each of the periodic soil-vapor-sampling events. Analytical data reports for all soil vapor samples were sent to Laboratory Data Consultants, located in Carlsbad, California, for independent data evaluation. All data were usable as qualified. The validated data reports are presented in Appendix A.

All sample analyses were performed using an external, three-point standard calibration method. For most target analytes, both detectors on the gas chromatograph (GC) were calibrated over a range equivalent of 5.0 to 200.0 μg/L of analyte in soil vapor. Analytical system performance was verified at the beginning of each analytical day with an "opening standard" and a "closing standard" after the last environmental sample analysis for the day. A "continuing standard" was analyzed after the tenth environmental sample run that day. If 10 or fewer samples were analyzed during the day, the closing standard was substituted for the continuing standard. Results of daily opening, closing, and continuing (if applicable) standards are presented in Appendix B-3.

During each analytical day, the environmental sample analyses were bracketed by check standards, which verified acceptable system performance for the analytes listed in the daily calibration data summary tables (Appendix B-3). The percent difference of calibration factors in continuing standard mixtures were all within the validation criteria of 25%, with the exception of dichlorodifluoromethane in three continuing calibrations performed on April 20, 21, and 22 (see Appendix A). Based on this, the dichlorodifluoromethane results for samples analyzed on these three days were qualified with a UJ flag indicating that the detection limits are estimated values, as dichlorodifluoromethane was not detected in any of these samples.

Field blanks of ambient air from inside the field laboratory trailer were analyzed immediately after the opening verification standard and were clean in all cases. No matrix spikes or laboratory replicates were required.

Surrogate compounds (dibromofluoromethane, 1,2-dichloroethane-d4, toluene-d8, and 4-bromofluorobenzene) were injected into the GC along with the environmental samples as a QA/QC check on recovery limits. In accordance with CRWQCB (1997) protocols, surrogate recoveries should be in the range of 75 to 125%. All surrogate recoveries obtained during these sampling events satisfied this criterion (see Appendix B-1).

No sample analysis data obtained during these sampling events were rejected as unusable. Overall, the assessment of soil vapor and corresponding control sample data indicate that data quality objectives were achieved in terms of precision, accuracy, representativeness, comparability, and completeness for all analytes sampled.

Battelle. 2001. *Technical Memorandum, Design, Construction, Operation, Optimization, and Monitoring Recommendations for the Soil Vapor Extraction (SVE) System, Operable Unit 2 (OU-2), Jet Propulsion Laboratory.* October.

California Regional Water Quality Control Board, Los Angeles Region. 1997. *Interim Guidance for Active Soil Gas Investigation.* February 25.

CRWQCB, see California Regional Water Quality Control Board.

Foster Wheeler Environmental Corporation. 1999. *Final Remedial Investigation Report for Operable Unit 2: Potential On-Site Contaminant Source Areas.* Volume 1. November.

Foster Wheeler Environmental Corporation. 2000a. *First Long-Term Soil Vapor Sampling Results, October 1998.* February.

Foster Wheeler Environmental Corporation. 2000b. *Second Long-Term Soil Vapor Sampling Results, October 1998.* February.

Foster Wheeler Environmental Corporation. 2000c. *Third Long-Term Soil Vapor Sampling Results, October 1998.* March.

Foster Wheeler Environmental Corporation. 2000d. *Fourth Long-Term Soil Vapor Sampling Results, January 2000.* April.

Foster Wheeler Environmental Corporation. 2000e. *Fifth Long-Term Soil Vapor Sampling Results, June 2000.* September.

GEOFON, Inc. 2001a. *Sixth Long-Term Soil Vapor Sampling Results, January 2001.* February.

GEOFON, Inc. 2001b. *Seventh Long-Term Soil Vapor Sampling Results, July 2001.* November.

GEOFON, Inc. 2001c. *Eighth Long-Term Soil Vapor Sampling Results, November 2001.* January.

GEOFON, Inc. 2002a. *Ninth Long-Term Soil Vapor Sampling Results, February 2002.* April.

GEOFON, Inc. 2002b. *Tenth Long-Term Soil Vapor Sampling Results, May 2002.* July.

GEOFON, Inc. 2002c. *Draft Final Remedial Design/Remedial Action Workplan for Operable Unit 2, National Aeronautics and Space Administration, Jet Propulsion Laboratory, Pasadena, California.* December 12.

GEOFON, Inc. 2003a. *Fourteenth Long-Term Soil Vapor Sampling Results, May 2003.* August.

GEOFON, Inc. 2003b. *Fifteenth Long-Term Soil Vapor Sampling Results, August 2003.* September.

GEOFON, Inc. 2004a. *Sixteenth Long-Term Soil Vapor Sampling Results, February 2004.* April.

GEOFON, Inc. 2004b. *Seventeenth Long-Term Soil Vapor Sampling Results, April 2004.* October.

GEOFON, Inc. 2004c. *Eighteenth Long-Term Soil Vapor Sampling Results, July 2004.* October.

National Aeronautics and Space Administration (NASA). 2005. *Soil Vapor Extraction Progress Report and Optimization Evaluation, Operable Unit 2.* February.

National Aeronautics and Space Administration (NASA). 2006. *Technical Memorandum, Operations Summary: July 2005 through December 2005.* January.

Table 1-1. Summary of Soil Vapor Sampling Frequency

Monitoring Point	Prior Sampling Frequency [1]	Revised Sampling Frequency [2]
VP-1	Annual	Annual
VP-2	Quarterly	Annual
VP-3	Annual	Quarterly at 29 and 40 feet bgs, else Annual
VP-4	Quarterly	Quarterly at 20 and 56 feet bgs, else Annual
VP-5	Annual	Quarterly at 9 feet bgs, else Annual
VP-6, VP-7, and VP-8	Annual	Annual
VP-9	Semiannual	Annual
VP-10	Quarterly	Annual
VP-11, VP-12, VP-13, VP-14, VP-15, and VP-16	Annual	Annual
VP-17	Quarterly	Quarterly at 36 feet bgs, else Annual
VP-18, VP-19A, and VP-20A,	Annual	Annual
VP-20, VP-21, VP-22, VP-23B, and VP-24	Soil Vapor Wells Plugged or Not Found	Soil Vapor Wells Not Found
VP-25	Annual	Quarterly at 180 feet bgs, else Annual
VP-26	Semiannual	Annual
VP-27	Semiannual	Quarterly at 180 feet bgs, else Annual
VP-28	Annual	Annual
VP-29	Soil Vapor Well Not Found	Soil Vapor Well Not Found
VP-30 and VP-31	Annual	Annual
VP-32	Quarterly at 155 feet bgs, else Annual	Quarterly at 180 and 195 feet bgs, else Annual
VP-33	Quarterly at 85 to 120 feet bgs, else Annual	Quarterly at 105 and 140 feet bgs, else Annual
VP-34	Quarterly at 118 feet bgs, else Annual	Annual
VP-35	Semiannual	Annual
VP-36	Quarterly at 35 to 55 feet bgs, else Semiannual	Annual
VP-37	Quarterly at 185 feet bgs, else Semiannual	Annual
VP-38	Semiannual	Annual
VP-39	Quarterly at 130 feet bgs, else Semiannual	Quarterly at 100 and 130 feet bgs, else Annual

(1) The prior sample frequency is based on an evaluation of periodic soil vapor monitoring data collected between July 2001 and February 2002.

(2) The revised sampling frequency is based on an evaluation of periodic soil vapor monitoring data collected between August 2003 and November 2004.

Table 2-1. Summary of Construction Details for Soil Vapor Monitoring Wells

Soil Vapor Well Number	Date Drilling Complete	Date Vapor Well Installed	Drilling Method	Total Boring Depth (ft bgs)	Sampling Tip Number	Depth to Sampling Tip (ft bgs)	Elevation of Ground Surface (ft amsl)	Elevation of Soil Vapor Sampling Tip (ft amsl)
1	8/30/1994	8/30/1994	Percussion Hammer	38.0	1	10	1124.5	1114.5
					2	21		1103.5
					3	33		1091.5
2	8/30/1994	8/30/1994	Percussion Hammer	38.5	1	10	1126.2	1116.2
					2	22		1104.2
					3	37		1089.2
3	9/1/1994	9/1/1994	Percussion Hammer	52.0	1	16	1133.9	1117.9
					2	29		1104.9
					3	40		1093.9
					4	47		1086.9
4	9/2/1994	9/2/1994	Percussion Hammer	60.5	1	11	1137.6	1126.6
					2	20		1117.6
					3	35		1102.6
					4	56		1081.6
5	9/3/1994	9/3/1994	Percussion Hammer	12.0	1	5	1126.8	1121.8
					2	9		1117.8
6	9/5/1994	9/5/1994	Percussion Hammer	100.5	1	20	1137.5	1117.5
					2	40		1097.5
					3	60		1077.5
					4	77		1060.5
					5	96		1041.5
7	9/8/1994	9/8/1994	Percussion Hammer	60.5	1	20	1115.8	1095.8
					2	35		1080.8
8	9/9/1994	9/9/1994	Percussion Hammer	101.5	1	20	1256.6	1236.6
					2	30		1226.6
					3	50		1206.6
					4	70		1186.6
					5	90		1166.6

Table 2-1. Summary of Construction Details for Soil Vapor Monitoring Wells (cont'd)

Soil Vapor Well Number	Date Drilling Complete	Date Vapor Well Installed	Drilling Method	Total Boring Depth (ft bgs)	Sampling Tip Number	Depth to Sampling Tip (ft bgs)	Elevation of Ground Surface (ft amsl)	Elevation of Soil Vapor Sampling Tip (ft amsl)
9	9/10/1994	9/11/1994	Percussion Hammer	90.0	1	20	1230.8	1210.8
					2	35		1195.8
					4	70		1160.8
					5	87		1143.8
10	9/13/1994	9/13/1994	Percussion Hammer	72.0	1	20	1232.8	1212.8
					2	35		1197.8
					3	50		1182.8
					4	69		1163.8
11	9/17/1994	9/18/1994	Percussion Hammer	100.0	1	20	1193.1	1173.1
					2	40		1153.1
					3	60		1133.1
					4	80		1113.1
					5	96		1097.1
12	9/19/1994	9/19/1994	Percussion Hammer	81.0	1	20	1097.9	1077.9
					2	40		1057.9
					3	60		1037.9
					4	76		1021.9
13	9/20/1994	9/21/1994	Percussion Hammer	48.0	1	10	1239.2	1229.2
					2	20		1219.2
					3	30		1209.2
					4	40		1199.2
14	9/22/1994	9/22/1994	Percussion Hammer	18.0	1	5	1213.0	1208.0
					2	10		1203.0
					3	13		1200.0
15	9/24/1994	9/24/1994	Percussion Hammer	95.0	1	20	1123.5	1103.5
					2	40		1083.5
					3	60		1063.5
					4	75		1048.5
					5	90		1033.5
16	9/29/2001	9/29/2001	Percussion Hammer	101.5	1	20	1199.2	1179.2
					2	40		1159.2
					3	60		1139.2
					4	80		1119.2
					5	95		1104.2
17	9/30/1994	9/30/1994	Percussion Hammer	40.0	1	12	1214.1	1202.1
					2	24		1190.1
					3	36		1178.1

Table 2-1. Summary of Construction Details for Soil Vapor Monitoring Wells (cont'd)

Soil Vapor Well Number	Date Drilling Complete	Date Vapor Well Installed	Drilling Method	Total Boring Depth (ft bgs)	Sampling Tip Number	Depth to Sampling Tip (ft bgs)	Elevation of Ground Surface (ft amsl)	Elevation of Soil Vapor Sampling Tip (ft amsl)
18	10/2/1994	10/2/1994	Percussion Hammer	89.5	1	20	1109.4	1089.4
					2	40		1069.4
					3	55		1054.4
					4	70		1039.4
					5	85		1024.4
19A	10/4/1994	10/4/1994	Percussion Hammer	101.0	1	20	1196.4	1176.4
					2	40		1156.4
					3	60		1136.4
					4	80		1116.4
					5	96		1100.4
20	***Well Was Not Located***							
20A	10/23/1994	10/23/1994	Percussion Hammer	72.0	1	20	1142.7	1122.7
					2	30		1112.7
					3	47		1095.7
					4	60		1082.7
21	***Well Was Not Located***							
22	***Well Was Not Located***							
23B	***Well Was Not Located***							
24	***Well Was Not Located***							
25	3/31/1997	3/31/1997	Sonic	202.0	1	20	1199.6	1179.6
					2	40		1159.6
					3	60		1139.6
					4	85		1114.6
					5	100		1099.6
					6	120		1079.6
					7	145		1054.6
					8	165		1034.6
					9	180		1019.6
					10	190		1009.6
26	3/27/1997	3/28/1997	Sonic	206.0	1	20	1201.8	1181.8

Table 2-1. Summary of Construction Details for Soil Vapor Monitoring Wells (cont'd)

Soil Vapor Well Number	Date Drilling Complete	Date Vapor Well Installed	Drilling Method	Total Boring Depth (ft bgs)	Sampling Tip Number	Depth to Sampling Tip (ft bgs)	Elevation of Ground Surface (ft amsl)	Elevation of Soil Vapor Sampling Tip (ft amsl)
26					2	35		1166.8
					3	55		1146.8
					4	80		1121.8
					5	100		1101.8
					6	115		1086.8
					7	140		1061.8
					8	160		1041.8
					9	180		1021.8
					10	195		1006.8
27	3/18/1997	3/18/1997	Sonic	214.0	1	20	1214.2	1194.2
					2	35		1179.2
					3	60		1154.2
					4	85		1129.2
					5	100		1114.2
					6	120		1094.2
					7	140		1074.2
					8	160		1054.2
					9	180		1034.2
					10	205		1009.2
28	3/13/1997	3/14/1997	Sonic	179.0	1	20	1176.7	1156.7
					2	45		1131.7
					3	65		1111.7
					4	80		1096.7
					5	105		1071.7
					6	120		1056.7
					7	140		1036.7
					8	160		1016.7
29	***Well Was Not Located***							
30	4/2/1997	4/2/1997	Sonic	68.9	1	17	1088.9	1071.9
					2	30		1058.9
					3	40		1048.9
					4	50		1038.9
					5	65		1023.9
31	4/9/1997	4/9/1997	Sonic	73.0	1	20	1083.1	1063.1
					2	35		1048.1
					3	45		1038.1
					4	55		1028.1

Table 2-1. Summary of Construction Details for Soil Vapor Monitoring Wells (cont'd)

Soil Vapor Well Number	Date Drilling Complete	Date Vapor Well Installed	Drilling Method	Total Boring Depth (ft bgs)	Sampling Tip Number	Depth to Sampling Tip (ft bgs)	Elevation of Ground Surface (ft amsl)	Elevation of Soil Vapor Sampling Tip (ft amsl)
31					5	65		1018.1
32	3/29/1998	3/29/1998	Sonic	210.0	1	25	1206.6	1181.6
					2	40		1166.6
					3	55		1151.6
					4	70		1136.6
					5	90		1116.6
					6	115		1091.6
					7	135		1071.6
					8	155		1051.6
					9	180		1026.6
					10	195		1011.6
33	3/31/1998	4/1/1998	Sonic	213.0	1	20	1214.0	1194.0
					2	40		1174.0
					3	60		1154.0
					4	85		1129.0
					5	105		1109.0
					6	120		1094.0
					7	140		1074.0
					8	160		1054.0
					9	180		1034.0
					10	200		1014.0
34	4/8/1998	4/8/1998	Sonic	135.0	1	20	1164.3	1144.3
					2	35		1129.3
					3	50		1114.3
					4	65		1099.3
					5	80		1084.3
					6	95		1069.3
					7	108		1056.3
					8	118		1046.3
35	4/14/1998	4/14/1998	Sonic	162.5	1	20	1183.2	1163.2
					2	35		1148.2
					3	50		1133.2
					4	60		1123.2
					5	80		1103.2
					6	95		1088.2
					7	110		1073.2
					8	125		1058.2

Table 2-1. Summary of Construction Details for Soil Vapor Monitoring Wells (cont'd)

Soil Vapor Well Number	Date Drilling Complete	Date Vapor Well Installed	Drilling Method	Total Boring Depth (ft bgs)	Sampling Tip Number	Depth to Sampling Tip (ft bgs)	Elevation of Ground Surface (ft amsl)	Elevation of Soil Vapor Sampling Tip (ft amsl)
					9	140		1043.2
					10	155		1028.2
36	3/27/1998	3/27/1998	Sonic	117.0	1	20	1232.8	1212.8
					2	35		1197.8
					3	55		1177.8
					4	75		1157.8
					5	92		1140.8
37	4/7/1998	4/7/1998	Sonic	193.0	1	25	1195.7	1170.7
					2	40		1155.7
					3	60		1135.7
					4	80		1115.7
					5	100		1095.7
					6	120		1075.7
					7	140		1055.7
					8	155		1040.7
					9	170		1025.7
					10	185		1010.7
38	4/15/1998	4/15/1998	Sonic	178.5	1	25	1185.6	1160.6
					2	45		1140.6
					3	65		1120.6
					4	80		1105.6
					5	95		1090.6
					6	110		1075.6
					7	125		1060.6
					8	140		1045.6
					9	155		1030.6
					10	170		1015.6
39	4/17/1998	4/17/1998	Sonic	138.0	1	20	1144.1	1124.1
					2	35		1109.1
					3	50		1094.1
					4	70		1074.1
					5	85		1059.1
					6	100		1044.1
					7	110		1034.1
					8	120		1024.1
					9	130		1014.1

Table 2-2. Summary of Primary Target Compounds for Analyses Performed on Soil Vapor Samples

Parameter	EPA Method	Container	Maximum Holding Time	Detection Limits
Volatile Organic Compounds	8260B	60-cc Syringe	15 minutes	
Benzene				1.0 µg/L-vapor
Vinyl chloride				1.0 µg/L-vapor
Carbon tetrachloride				1.0 µg/L-vapor
1,2-Dichloroethane				1.0 µg/L-vapor
Trichloroethene				1.0 µg/L-vapor
1,1,1-Trichloroethane				1.0 µg/L-vapor
Bromomethane				1.0 µg/L-vapor
Chloromethane				1.0 µg/L-vapor
Chloroform				1.0 µg/L-vapor
trans-1,2-Dichloroethene				1.0 µg/L-vapor
cis-1,2-Dichloroethene				1.0 µg/L-vapor
Dichloromethane				1.0 µg/L-vapor
1,1-Dichloroethane				1.0 µg/L-vapor
Ethylbenzene				1.0 µg/L-vapor
1,1,2-Trichloroethane				1.0 µg/L-vapor
1,1,1,2-Tetrachloroethane				1.0 µg/L-vapor
1,1,2,2-Tetrachloroethane				1.0 µg/L-vapor
Tetrachloroethene				1.0 µg/L-vapor
Toluene				1.0 µg/L-vapor
m,p-Xylenes				1.0 µg/L-vapor
o-Xylene				1.0 µg/L-vapor
Trichlorofluoromethane (Freon 11)				1.0 µg/L-vapor
Dichlorodifluoromethane (Freon 12)				1.0 µg/L-vapor
Trichlorotrifluoroethane (Freon 113)				1.0 µg/L-vapor

Table 3-1. Summary of Soil Vapor Results, Twentieth Periodic Sampling Event, February 2005
(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
2	10	2/3/2005	SVW2-VPA-003	ND	ND	ND	ND	ND	ND	ND	ND
2	22	NS	NS	P	P	P	P	P	P	P	P
2	37	NS	NS	P	P	P	P	P	P	P	P
4	11	NS	NS	P	P	P	P	P	P	P	P
4	20	2/3/2005	SVW4-VPB-004	ND	ND	**19**	ND	ND	ND	ND	ND
4	35	NS	NS	P	P	P	P	P	P	P	P
4	56	NS	NS	P	P	P	P	P	P	P	P
10	20	NS	NS	P	P	P	P	P	P	P	P
10	35	2/3/2005	SVW10-VPB-006	ND	**3.2**	ND	ND	ND	ND	ND	ND
10	50	NS	NS	P	P	P	P	P	P	P	P
10	69	NS	NS	P	P	P	P	P	P	P	P
17	12	NS	NS	P	P	P	P	P	P	P	P
17	24	2/3/2005	SVW17-VPB-005	ND	ND	ND	ND	ND	ND	ND	ND
17	36	NS	NS	P	P	P	P	P	P	P	P
32	155	2/3/2005	SVW32-VPH-011	ND	ND	ND	ND	ND	ND	ND	ND
33	85	2/3/2005	SVW33-VPD-007	ND	ND	ND	ND	ND	ND	ND	ND
33	105	2/3/2005	SVW33-VPE-008	ND	ND	ND	ND	ND	ND	ND	ND
33	120	2/3/2005	SVW33-VPF-009	**2.2**	ND	ND	ND	**1.2**	ND	ND	ND
33	120	2/3/2005	SVW33-VPF-010 Dup	**2.4**	ND	ND	ND	**1.3**	ND	ND	ND
34	118	NS	NS	P	P	P	P	P	P	P	P
36	35	2/3/2005	SVW36-VPB-012	ND	ND	ND	ND	ND	ND	ND	ND
36	55	2/3/2005	SVW36-VPC-013	ND	ND	ND	ND	ND	ND	ND	ND

Table 3-1. Summary of Soil Vapor Results, Twentieth Periodic Sampling Event, February 2005 (cont'd)
(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
36	55	2/3/2005	SVW36-VPC-014 Dup	ND	ND	ND	ND	ND	ND	ND	ND
37	185	2/3/2005	SVW37-VPJ-002	ND	ND	ND	ND	ND	ND	ND	ND
39	130	2/3/2005	SVW39-VPI-001	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
Dup: Duplicate Sample
ND: Not Detected (Above the PQL)
PCE: Tetrachloroethene
1,1-DCE: 1,1-Dichloroethene
CCl_4: Carbon Tetrachloride
NS: Not Sampled
PQL: Practical Quantitation Limit
1,1,1-TCA: 1,1,1-Trichloroethane
Ft bgs: Feet Below Grade Surface
P: Sampling Port Plugged, Unable to Purge or Blow
TCE: Trichloroethene
µg/L: Micrograms per Liter (Vapor)

Table 3-2. Summary of Soil Vapor Results, Twenty-First Periodic Sampling Event, April 2005
(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
2	10	4/19/2005	SVW2-VPA-012	ND	ND	ND	ND	ND	ND	ND	ND
2	22	NS	NS	P	P	P	P	P	P	P	P
2	37	NS	NS	P	P	P	P	P	P	P	P
4	11	NS	NS	P	P	P	P	P	P	P	P
4	20	4/19/2005	SVW4-VPB-013	ND	ND	**18**	ND	ND	ND	ND	ND
4	35	NS	NS	P	P	P	P	P	P	P	P
4	56	NS	NS	P	P	P	P	P	P	P	P
9	20	4/19/2005	SVW9-VPA-001	ND	ND	ND	ND	ND	ND	ND	ND
9	35	4/19/2005	SVW9-VPB-002	ND	ND	ND	ND	ND	ND	ND	ND
9	50	4/19/2005	SVW9-VPC-003	ND	ND	ND	ND	ND	ND	ND	ND
9	70	4/19/2005	SVW9-VPD-004	ND	ND	ND	ND	ND	ND	ND	ND
9	87	4/19/2005	SVW9-VPE-005	ND	ND	ND	ND	ND	ND	ND	ND
10	20	NS	NS	P	P	P	P	P	P	P	P
10	35	4/19/2005	SVW10-VPB-006	ND	ND	ND	ND	ND	ND	ND	ND
10	50	NS	NS	P	P	P	P	P	P	P	P
10	69	NS	NS	P	P	P	P	P	P	P	P
17	12	NS	NS	P	P	P	P	P	P	P	P
17	24	4/19/2005	SVW17-VPB-007	ND	ND	ND	ND	ND	ND	ND	ND
*Toluene was detected in soil vapor monitoring well No. 17 at a concentration of 9.1 ug/L-vapor at a depth of 24 feet.											
17	36	NS	NS	P	P	P	P	P	P	P	P
26	20	NS	NS	P	P	P	P	P	P	P	P
26	35	NS	NS	P	P	P	P	P	P	P	P
26	55	NS	NS	P	P	P	P	P	P	P	P
26	80	NS	NS	P	P	P	P	P	P	P	P
26	100	NS	NS	P	P	P	P	P	P	P	P
26	115	4/19/2005	SVW26-VPF-008	ND	ND	ND	ND	ND	ND	ND	ND

Table 3-2. Summary of Soil Vapor Results, Twenty-First Periodic Sampling Event, April 2005
(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
26	140	4/19/2005	SVW26-VPG-009	ND	ND	ND	ND	ND	ND	ND	ND
26	140	4/19/2005	SVW26-VPG-010 Dup	ND	ND	ND	ND	ND	ND	ND	ND
26	160	4/19/2005	SVW26-VPH-011	ND	ND	ND	ND	ND	ND	ND	ND
26	180	NS	NS	P	P	P	P	P	P	P	P
26	195	NS	NS	P	P	P	P	P	P	P	P
27	20	4/20/2005	SVW27-VPA-014	ND	ND	ND	ND	ND	**92**	ND	ND
27	35	4/20/2005	SVW27-VPB-015	ND	ND	ND	ND	ND	**81**	ND	ND
27	60	4/20/2005	SVW27-VPC-016	ND	ND	ND	ND	ND	ND	ND	ND
27	85	4/20/2005	SVW27-VPD-017	ND	ND	ND	ND	ND	ND	ND	ND
27	100	4/20/2005	SVW27-VPE-018	ND	ND	ND	ND	ND	ND	ND	ND
27	120	4/20/2005	SVW27-VPF-019	ND	ND	ND	ND	ND	ND	ND	ND
27	120	4/20/2005	SVW27-VPF-020 Dup	ND	ND	ND	ND	ND	ND	ND	ND
27	140	4/20/2005	SVW27-VPG-021	ND	ND	ND	ND	ND	ND	ND	ND
27	160	NS	NS	P	P	P	P	P	P	P	P
27	180	4/20/2005	SVW27-VPI-022	ND	ND	ND	ND	ND	ND	ND	ND
27	205	4/20/2005	SVW27-VPJ-023	ND	ND	ND	ND	ND	ND	ND	ND
32	155	4/20/2005	SVW32-VPA-024	ND	ND	ND	ND	ND	ND	ND	ND
33	85	4/20/2005	SVW33-VPD-025	ND	ND	ND	ND	ND	ND	ND	ND
33	105	4/20/2005	SVW33-VPE-026	ND	ND	ND	ND	ND	ND	ND	ND
33	120	4/20/2005	SVW33-VPF-027	ND	ND	ND	ND	ND	ND	ND	ND
34	118	NS	NS	P	P	P	P	P	P	P	P
35	20	NS	NS	P	P	P	P	P	P	P	P
35	35	4/21/2005	SVW35-VPB-037	ND	ND	ND	ND	ND	ND	ND	ND
35	50	NS	NS	P	P	P	P	P	P	P	P
35	60	NS	NS	P	P	P	P	P	P	P	P
35	80	4/21/2005	SVW35-VPE-038	ND	ND	ND	ND	ND	ND	ND	ND
35	95	NS	NS	P	P	P	P	P	P	P	P
35	110	NS	NS	P	P	P	P	P	P	P	P
35	125	NS	NS	P	P	P	P	P	P	P	P
35	140	NS	NS	P	P	P	P	P	P	P	P

Table 3-2. Summary of Soil Vapor Results, Twenty-First Periodic Sampling Event, April 2005
(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
35	155	NS	NS	P	P	P	P	P	P	P	P
36	20	4/21/2005	SVW36-VPA-028	ND	ND	ND	ND	ND	ND	ND	ND
36	35	4/21/2005	SVW36-VPB-029	ND	ND	ND	ND	ND	ND	ND	ND
36	55	4/21/2005	SVW36-VPC-030	ND	ND	ND	ND	ND	ND	ND	ND
36	55	4/21/2005	SVW36-VPC-031 Dup	ND	ND	ND	ND	ND	ND	ND	ND
36	75	4/21/2005	SVW36-VPD-032	ND	ND	ND	ND	ND	ND	ND	ND
36	92	4/21/2005	SVW36-VPE-033	ND	ND	ND	ND	ND	ND	ND	ND
37	25	NS	NS	P	P	P	P	P	P	P	P
37	40	4/22/2005	SVW37-VPB-046	ND	ND	ND	ND	ND	ND	ND	ND
37	60	NS	NS	P	P	P	P	P	P	P	P
37	80	4/22/2005	SVW37-VPD-047	ND	ND	ND	ND	ND	ND	ND	ND
37	100	4/22/2005	SVW37-VPE-048	ND	ND	ND	ND	ND	ND	ND	ND
37	120	NS	NS	P	P	P	P	P	P	P	P
37	140	NS	NS	P	P	P	P	P	P	P	P
37	155	4/22/2005	SVW37-VPH-049	ND	ND	ND	ND	ND	ND	ND	ND
37	155	4/22/2005	SVW37-VPH-050 Dup	ND	ND	ND	ND	ND	ND	ND	ND
37	170	4/22/2005	SVW37-VPI-051	ND	ND	ND	ND	ND	ND	ND	ND
37	185	4/22/2005	SVW37-VPJ-052	ND	ND	ND	ND	ND	ND	ND	ND
38	25	NS	NS	P	P	P	P	P	P	P	P
38	45	NS	NS	P	P	P	P	P	P	P	P
38	65	NS	NS	P	P	P	P	P	P	P	P
38	80	4/21/2005	SVW38-VPD-034	ND	ND	ND	ND	ND	ND	ND	ND
38	95	NS	NS	P	P	P	P	P	P	P	P
38	110	4/21/2005	SVW38-VPF-035	ND	ND	ND	ND	ND	ND	ND	ND
38	125	NS	NS	P	P	P	P	P	P	P	P
38	140	NS	NS	P	P	P	P	P	P	P	P
38	155	NS	NS	P	P	P	P	P	P	P	P
38	170	4/21/2005	SVW38-VPJ-036	ND	ND	ND	ND	ND	ND	ND	ND
39	20	4/22/2005	SVW39-VPA-039	ND	ND	ND	ND	ND	ND	ND	ND
39	35	NS	NS	P	P	P	P	P	P	P	P

Table 3-2. Summary of Soil Vapor Results, Twenty-First Periodic Sampling Event, April 2005
(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
39	50	4/22/2005	SVW39-VPC-040	ND	ND	ND	ND	ND	ND	ND	ND
39	50	4/22/2005	SVW39-VPC-041 Dup	ND	ND	ND	ND	ND	ND	ND	ND
39	70	NS	NS	P	P	P	P	P	P	P	P
39	85	4/22/2005	SVW39-VPE-042	ND	ND	ND	ND	ND	ND	ND	ND
39	100	4/22/2005	SVW39-VPF-043	ND	**3.3**	**3.7**	ND	ND	ND	ND	ND
39	110	4/22/2005	SVW39-VPG-044	ND	ND	ND	ND	ND	ND	ND	ND
39	120	NS	NS	P	P	P	P	P	P	P	P
39	130	4/22/2005	SVW39-VPI-045	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
Dup: Duplicate Sample
ND: Not Detected (Above the PQL)
PCE: Tetrachloroethene
1,1-DCE: 1,1-Dichloroethene
CCl_4: Carbon Tetrachloride
NS: Not Sampled
PQL: Practical Quantitation Limit
1,1,1-TCA: 1,1,1-Trichloroethane
Ft bgs: Feet Below Grade Surface
P: Sampling Port Plugged, Unable to Purge or Blow
TCE: Trichloroethene
µg/L: Micrograms per Liter (Vapor)

Table 3-3. Summary of Soil Vapor Results, Twenty-Second Periodic Sampling Event, July 2005
(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
3	29	7/12/2005	SVW3-VPB-003	**1.3**	ND	ND	ND	ND	ND	ND	ND
3	40	7/12/2005	SVW3-VPC-004	**1.3**	ND	ND	ND	ND	ND	ND	ND
4	20	7/12/2005	SVW4-VPB-002	ND	ND	**11.0**	ND	ND	ND	ND	ND
4	56	NS	NS	P	P	P	P	P	P	P	P
5	9	7/12/2005	SVW5-VPB-001	ND	ND	ND	ND	ND	ND	ND	ND
17	24	7/12/2005	SVW17-VPB-014	ND	ND	ND	ND	ND	ND	ND	ND
17	24	7/12/2005	SVW17-VPB-015 Dup	ND	ND	ND	ND	ND	ND	ND	ND
25	180	7/12/2005	SVW25-VPI-007	ND	ND	ND	ND	ND	ND	ND	ND
25	180	7/12/2005	SVW25-VPI-008 Dup	ND	ND	ND	ND	ND	ND	ND	ND
27	180	7/12/2005	SVW27-VPI-011	ND	ND	ND	ND	ND	ND	ND	ND
32	180	7/12/2005	SVW32-VPI-012	ND	ND	ND	ND	ND	ND	ND	ND
32	195	7/12/2005	SVW32-VPJ-013	ND	ND	ND	ND	ND	ND	ND	ND
33	105	7/12/2005	SVW33-VPE-009	ND	ND	ND	ND	ND	ND	ND	ND
33	140	7/12/2005	SVW33-VPG-010	ND	ND	ND	ND	ND	ND	ND	ND
39	100	7/12/2005	SVW39-VPF-005	ND	**2.5**	**2.5**	ND	ND	ND	ND	ND
39	130	7/12/2005	SVW39-VPI-006	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
Dup: Duplicate Sample
ND: Not Detected (Above the PQL)
PCE: Tetrachloroethene
1,1-DCE: 1,1-Dichloroethene
CCl_4: Carbon Tetrachloride
NS: Not Sampled
PQL: Practical Quantitation Limit
1,1,1-TCA: 1,1,1-Trichloroethane
Ft bgs: Feet Below Ground Surface
P: Sampling Port Plugged, Unable to Purge or Blow
TCE: Trichloroethene
µg/L: Micrograms per Liter (Vapor)

Table 3-4. Summary of Soil Vapor Results, Twenty-Third Periodic Sampling Event, October 2005
(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
1	10	10/18/2005	SVW1-VPA-024	ND	ND	ND	ND	ND	ND	ND	ND
1	21	10/18/2005	SVW1-VPB-025	ND	ND	ND	ND	ND	ND	ND	ND
1	33	10/18/2005	SVW1-VPC-026	ND	ND	ND	ND	ND	ND	ND	ND
2	10	10/18/2005	SVW2-VPA-023	ND	ND	ND	ND	ND	ND	ND	ND
2	22	NS	NS	P	P	P	P	P	P	P	P
2	37	NS	NS	P	P	P	P	P	P	P	P
3	16	NS	NS	P	P	P	P	P	P	P	P
3	29	10/18/2005	SVW3-VPB-017	**1.0**	ND	ND	ND	ND	ND	ND	ND
3	40	10/18/2005	SVW3-VPC-018	**1.4**	ND	ND	ND	ND	ND	ND	ND
3	47	NS	NS	P	P	P	P	P	P	P	P
4	11	NS	NS	P	P	P	P	P	P	P	P
4	20	10/18/2005	SVW4-VPB-022	ND	ND	**9.5**	ND	ND	ND	ND	ND
4	35	NS	NS	P	P	P	P	P	P	P	P
4	56	NS	NS	P	P	P	P	P	P	P	P
5	5	NS	NS	P	P	P	P	P	P	P	P
5	9	10/18/2005	SVW5-VPB-014	ND	ND	ND	ND	ND	ND	ND	ND
6	20	NS	NS	P	P	P	P	P	P	P	P
6	40	NS	NS	P	P	P	P	P	P	P	P
6	60	NS	NS	P	P	P	P	P	P	P	P
6	77	10/18/2005	SVW6-VPD-015	ND	ND	ND	ND	ND	ND	ND	ND

Table 3-4. Summary of Soil Vapor Results, Twenty-Third Periodic Sampling Event, October 2005 (cont'd)

(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
6	96	10/18/2005	SVW6-VPE-016	ND	ND	ND	ND	ND	ND	ND	ND
7	20	10/18/2005	SVW7-VPA-019	ND	ND	ND	ND	ND	ND	ND	ND
7	35	10/18/2005	SVW7-VPB-020	ND	ND	ND	ND	ND	ND	ND	ND
7	35	10/18/2005	SVW7-VPB-021 (Dup)	ND	ND	ND	ND	ND	ND	ND	ND
8	20	NS	NS	P	P	P	P	P	P	P	P
8	30	NS	NS	P	P	P	P	P	P	P	P
8	50	NS	NS	P	P	P	P	P	P	P	P
8	70	NS	NS	P	P	P	P	P	P	P	P
8	90	NS	NS	P	P	P	P	P	P	P	P
9	20	10/20/2005	SVW9-VPA-041	ND	ND	ND	ND	ND	ND	ND	ND
9	35	10/20/2005	SVW9-VPB-042	ND	ND	ND	ND	ND	ND	ND	ND
9	35	10/20/2005	SVW9-VPB-043 (Dup)	ND	ND	ND	ND	ND	ND	ND	ND
9	50	10/20/2005	SVW9-VPC-044	ND	ND	ND	ND	ND	ND	ND	ND
9	70	10/20/2005	SVW9-VPD-045	ND	ND	ND	ND	ND	ND	ND	ND
9	87	10/20/2005	SVW9-VPE-046	ND	ND	ND	ND	ND	ND	ND	ND
10	20	NS	NS	P	P	P	P	P	P	P	P
10	35	10/20/2005	SVW10-VPB-047	ND	**2.2**	ND	ND	ND	ND	ND	ND
10	50	NS	NS	P	P	P	P	P	P	P	P
10	69	10/20/2005	SVW10-VPD-048	ND	ND	ND	ND	ND	ND	ND	ND
11	20	NS	NS	P	P	P	P	P	P	P	P
11	40	10/20/2005	SVW11-VPB-040	ND	ND	ND	ND	ND	ND	ND	ND
11	60	NS	NS	P	P	P	P	P	P	P	P
11	80	NS	NS	P	P	P	P	P	P	P	P
11	96	NS	NS	P	P	P	P	P	P	P	P
12	20	NS	NS	P	P	P	P	P	P	P	P
12	40	10/17/2005	SVW12-VPB-012	ND	ND	ND	ND	ND	ND	ND	ND
12	60	10/17/2005	SVW12-VPC-013	ND	ND	ND	ND	ND	ND	ND	ND
12	76	NS	NS	P	P	P	P	P	P	P	P

Table 3-4. Summary of Soil Vapor Results, Twenty-Third Periodic Sampling Event, October 2005 (cont'd)

(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
13	10	NS	NS	P	P	P	P	P	P	P	P
13	20	NS	NS	P	P	P	P	P	P	P	P
13	30	NS	NS	P	P	P	P	P	P	P	P
13	40	NS	NS	P	P	P	P	P	P	P	P
14	5	NS	NS	P	P	P	P	P	P	P	P
14	10	NS	NS	P	P	P	P	P	P	P	P
14	13	NS	NS	P	P	P	P	P	P	P	P
15	20	NS	NS	P	P	P	P	P	P	P	P
15	40	10/26/2005	SVW15-VPB-097	ND	ND	ND	ND	ND	ND	ND	ND
15	40	10/26/2005	SVW15-VPB-098 (Dup)	ND	ND	ND	ND	ND	ND	ND	ND
15	60	10/26/2005	SVW15-VPC-099	ND	ND	ND	ND	ND	ND	ND	ND
15	75	10/26/2005	SVW15-VPD-100	ND	ND	ND	ND	ND	ND	ND	ND
15	90	10/26/2005	SVW15-VPE-101	ND	ND	ND	ND	ND	ND	ND	ND
16	20	NS	NS	P	P	P	P	P	P	P	P
16	40	NS	NS	P	P	P	P	P	P	P	P
16	60	NS	NS	P	P	P	P	P	P	P	P
16	80	NS	NS	P	P	P	P	P	P	P	P
16	95	NS	NS	P	P	P	P	P	P	P	P
17	12	NS	NS	P	P	P	P	P	P	P	P
17	24	NS	NS	P	P	P	P	P	P	P	P
17	36	NS	NS	P	P	P	P	P	P	P	P
18	20	NS	NS	P	P	P	P	P	P	P	P
18	40	NS	NS	P	P	P	P	P	P	P	P
18	55	NS	NS	P	P	P	P	P	P	P	P
18	70	NS	NS	P	P	P	P	P	P	P	P
18	85	NS	NS	P	P	P	P	P	P	P	P
19A	20	NS	NS	P	P	P	P	P	P	P	P
19A	40	NS	NS	P	P	P	P	P	P	P	P
19A	60	10/25/2005	SVW19-VPC-088	ND	ND	ND	ND	ND	ND	ND	ND

Table 3-4. Summary of Soil Vapor Results, Twenty-Third Periodic Sampling Event, October 2005 (cont'd)

(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
19A	60	10/25/2005	SVW19-VPC-089 (Dup)	ND	ND	ND	ND	ND	ND	ND	ND
20	10	NS	NS	***WELL WAS NOT LOCATED***							
20	20	NS	NS								
20	30	NS	NS								
20	37	NS	NS								
20A	20	NS	NS	P	P	P	P	P	P	P	P
20A	30	NS	NS	P	P	P	P	P	P	P	P
20A	47	NS	NS	P	P	P	P	P	P	P	P
20A	60	NS	NS	P	P	P	P	P	P	P	P
21	20	NS	NS	***WELL WAS NOT LOCATED***							
21	40	NS	NS								
21	55	NS	NS								
21	70	NS	NS								
21	85	NS	NS								
22	20	NS	NS	***WELL WAS NOT LOCATED***							
22	39	NS	NS								
22	60	NS	NS								
22	80	NS	NS								
22	95	NS	NS								
23B	5	NS	NS	***WELL WAS NOT LOCATED***							
23B	11	NS	NS								
23B	17	NS	NS								
24	20	NS	NS	***WELL WAS NOT LOCATED***							
24	40	NS	NS								
24	60	NS	NS								
24	80	NS	NS								
24	95	NS	NS								
25	20	10/24/2005	SVW25-VPA-073	ND	ND	ND	ND	ND	ND	ND	ND
25	40	10/24/2005	SVW25-VPB-074	ND	ND	ND	ND	ND	ND	ND	ND

Table 3-4. Summary of Soil Vapor Results, Twenty-Third Periodic Sampling Event, October 2005 (cont'd)
(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
25	40	10/24/2005	SVW25-VPB-075 (Dup)	ND	ND	ND	ND	ND	ND	ND	ND
25	60	NS	NS	P	P	P	P	P	P	P	P
25	85	10/24/2005	SVW25-VPD-076	ND	ND	ND	ND	ND	ND	ND	ND
25	100	NS	NS	P	P	P	P	P	P	P	P
25	120	NS	NS	P	P	P	P	P	P	P	P
25	145	NS	NS	P	P	P	P	P	P	P	P
25	165	NS	NS	P	P	P	P	P	P	P	P
25	180	NS	NS	P	P	P	P	P	P	P	P
25	190	NS	NS	P	P	P	P	P	P	P	P
26	20	NS	NS	P	P	P	P	P	P	P	P
26	35	NS	NS	P	P	P	P	P	P	P	P
26	55	NS	NS	P	P	P	P	P	P	P	P
26	80	NS	NS	P	P	P	P	P	P	P	P
26	100	NS	NS	P	P	P	P	P	P	P	P
26	115	NS	NS	P	P	P	P	P	P	P	P
26	140	NS	NS	P	P	P	P	P	P	P	P
26	160	NS	NS	P	P	P	P	P	P	P	P
26	160	NS	NS	P	P	P	P	P	P	P	P
26	180	NS	NS	P	P	P	P	P	P	P	P
26	195	NS	NS	P	P	P	P	P	P	P	P
27	20	10/19/2005	SVW27-VPA-031	ND	ND	ND	ND	ND	**43**	ND	ND
27	20	10/19/2005	SVW27-VPA-032 (Dup)	ND	ND	ND	ND	ND	**45**	ND	ND
27	35	10/19/2005	SVW27-VPB-033	ND	ND	ND	ND	ND	**59**	ND	ND
27	60	10/19/2005	SVW27-VPC-034	ND	ND	ND	ND	ND	**4.0**	ND	ND
27	85	10/19/2005	SVW27-VPD-035	ND	ND	ND	ND	ND	ND	ND	ND
27	100	NS	NS	P	P	P	P	P	P	P	P
27	120	10/19/2005	SVW27-VPF-036	ND	ND	ND	ND	ND	ND	ND	ND
27	140	10/19/2005	SVW27-VPG-037	ND	ND	ND	ND	ND	ND	ND	ND

Table 3-4. Summary of Soil Vapor Results, Twenty-Third Periodic Sampling Event, October 2005 (cont'd)

(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
27	160	NS	NS	P	P	P	P	P	P	P	P
27	180	10/19/2005	SVW27-VPI-038	**1.3**	ND	ND	ND	ND	ND	ND	ND
27	205	10/19/2005	SVW27-VPJ-039	ND	ND	ND	ND	ND	ND	ND	ND
28	20	10/24/2005	SVW28-VPA-069	ND	ND	ND	ND	ND	ND	ND	ND
28	45	NS	NS	P	P	P	P	P	P	P	P
28	65	10/24/2005	SVW28-VPC-070	ND	ND	ND	ND	ND	ND	ND	ND
28	80	10/24/2005	SVW28-VPD-071	ND	ND	ND	ND	ND	ND	ND	ND
28	105	10/24/2005	SVW28-VPE-072	ND	ND	ND	ND	ND	ND	ND	ND
28	120	NS	NS	P	P	P	P	P	P	P	P
28	140	NS	NS	P	P	P	P	P	P	P	P
28	160	NS	NS	P	P	P	P	P	P	P	P
29	20	NS	NS	***WELL WAS NOT LOCATED***							
29	35	NS	NS								
29	50	NS	NS								
29	60	NS	NS								
29	78	NS	NS								
30	17	10/17/2005	SVW30-VPA-006	ND	ND	ND	ND	ND	ND	ND	ND
30	30	10/17/2005	SVW30-VPB-007	ND	ND	ND	ND	ND	ND	ND	ND
30	40	10/17/2005	SVW30-VPC-008	ND	ND	ND	ND	ND	ND	ND	ND
30	50	10/17/2005	SVW30-VPD-009	ND	ND	ND	ND	ND	ND	ND	ND
30	50	10/17/2005	SVW30-VPD-010 (Dup)	ND	ND	ND	ND	ND	ND	ND	ND
30	65	10/17/2005	SVW30-VPE-011	ND	ND	ND	ND	ND	ND	ND	ND
31	20	10/17/2005	SVW31-VPA-001	ND	ND	ND	ND	ND	ND	ND	ND
31	35	10/17/2005	SVW31-VPB-002	ND	ND	ND	ND	ND	ND	ND	ND
31	45	10/17/2005	SVW31-VPC-003	ND	ND	ND	ND	ND	ND	ND	ND
31	55	10/17/2005	SVW31-VPD-004	ND	ND	ND	ND	ND	ND	ND	ND
31	65	10/17/2005	SVW31-VPE-005	ND	ND	ND	ND	ND	ND	ND	ND
32	25	10/19/2005	SVW32-VPA-027	ND	ND	ND	ND	ND	ND	ND	ND

Table 3-4. Summary of Soil Vapor Results, Twenty-Third Periodic Sampling Event, October 2005 (cont'd)

(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
32	40	10/19/2005	SVW32-VPB-028	ND	ND	ND	ND	ND	ND	ND	ND
32	55	NS	NS	P	P	P	P	P	P	P	P
32	70	NS	NS	P	P	P	P	P	P	P	P
32	90	NS	NS	P	P	P	P	P	P	P	P
32	115	NS	NS	P	P	P	P	P	P	P	P
32	135	NS	NS	P	P	P	P	P	P	P	P
32	155	NS	NS	P	P	P	P	P	P	P	P
32	180	10/19/2005	SVW32-VPI-029	ND	ND	ND	ND	ND	ND	ND	ND
32	195	10/19/2005	SVW32-VPJ-030	ND	ND	ND	ND	ND	ND	ND	ND
33	20	10/21/2005	SVW33-VPA-055	ND	ND	ND	ND	ND	ND	ND	ND
33	40	10/21/2005	SVW33-VPB-056	ND	ND	ND	ND	ND	ND	ND	ND
33	60	10/21/2005	SVW33-VPC-057	ND	ND	ND	ND	ND	ND	ND	ND
33	85	10/21/2005	SVW33-VPD-058	ND	ND	ND	ND	ND	ND	ND	ND
33	105	10/21/2005	SVW33-VPE-059	ND	ND	ND	ND	ND	ND	ND	ND
33	120	10/21/2005	SVW33-VPF-060	ND	ND	ND	ND	**1.8**	ND	ND	ND
33	140	10/21/2005	SVW33-VPG-061	ND	ND	ND	ND	ND	ND	ND	ND
33	160	NS	NS	P	P	P	P	P	P	P	P
33	180	NS	NS	P	P	P	P	P	P	P	P
33	200	10/20/2005	SVW33-VPJ-062	ND	ND	ND	ND	ND	ND	ND	ND
34	20	NS	NS	P	P	P	P	P	P	P	P
34	35	NS	NS	P	P	P	P	P	P	P	P
34	50	NS	NS	P	P	P	P	P	P	P	P
34	65	10/25/2005	SVW34-VPD-094	ND	ND	ND	ND	ND	ND	ND	ND
34	80	10/25/2005	SVW34-VPE-095	ND	ND	ND	ND	ND	ND	ND	ND
34	95	10/25/2005	SVW34-VPF-096	ND	ND	ND	ND	ND	ND	ND	ND
34	108	NS	NS	P	P	P	P	P	P	P	P
34	118	NS	NS	P	P	P	P	P	P	P	P
35	20	10/24/2005	SVW35-VPA-077	ND	ND	ND	ND	ND	ND	ND	ND
35	35	10/24/2005	SVW35-VPB-078	ND	ND	ND	ND	ND	ND	ND	ND

Table 3-4. Summary of Soil Vapor Results, Twenty-Third Periodic Sampling Event, October 2005 (cont'd)

(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
35	50	NS	NS	P	P	P	P	P	P	P	P
35	60	NS	NS	P	P	P	P	P	P	P	P
35	80	10/24/2005	SVW35-VPE-079	ND	ND	ND	ND	ND	ND	ND	ND
35	95	NS	NS	P	P	P	P	P	P	P	P
35	110	NS	NS	P	P	P	P	P	P	P	P
35	125	NS	NS	P	P	P	P	P	P	P	P
35	140	NS	NS	P	P	P	P	P	P	P	P
35	155	10/24/2005	SVW35-VPJ-080	ND	ND	ND	ND	ND	ND	ND	ND
36	20	10/21/2005	SVW36-VPA-063	ND	ND	ND	ND	ND	ND	ND	ND
36	20	10/21/2005	SVW36-VPA-064 (Dup)	ND	ND	ND	ND	ND	ND	ND	ND
36	35	10/21/2005	SVW36-VPB-065	ND	ND	ND	ND	ND	ND	ND	ND
36	55	10/21/2005	SVW36-VPC-066	ND	ND	ND	ND	ND	ND	ND	ND
36	75	10/21/2005	SVW36-VPD-067	ND	ND	ND	ND	ND	ND	ND	ND
36	92	10/21/2005	SVW36-VPE-068	ND	ND	ND	ND	ND	ND	ND	ND
37	25	NS	NS	P	P	P	P	P	P	P	P
37	40	10/25/2005	SVW37-VPB-081	ND	ND	ND	ND	ND	ND	ND	ND
37	60	NS	NS	P	P	P	P	P	P	P	P
37	80	10/25/2005	SVW37-VPD-082	ND	ND	ND	ND	ND	ND	ND	ND
37	100	10/25/2005	SVW37-VPE-083	ND	ND	ND	ND	ND	ND	ND	ND
37	120	NS	NS	P	P	P	P	P	P	P	P
37	140	10/25/2005	SVW37-VPG-084	ND	ND	ND	ND	ND	ND	ND	ND
37	155	10/25/2005	SVW37-VPH-085	ND	ND	ND	ND	ND	ND	ND	ND
37	170	10/25/2005	SVW37-VPI-086	ND	ND	ND	ND	ND	ND	ND	ND
37	185	10/25/2005	SVW37-VPJ-087	ND	ND	ND	ND	ND	ND	ND	ND
38	25	10/25/2005	SVW38-VPA-090	ND	ND	ND	ND	ND	ND	ND	ND
38	45	NS	NS	P	P	P	P	P	P	P	P
38	65	NS	NS	P	P	P	P	P	P	P	P
38	80	10/25/2005	SVW38-VPD-091	ND	ND	ND	ND	ND	ND	ND	ND

Table 3-4. Summary of Soil Vapor Results, Twenty-Third Periodic Sampling Event, October 2005 (cont'd)
(Concentrations in µg/L-vapor)

Soil Vapor Well Number	Depth (Ft bgs)	Date	Sample Number	CCl_4	Freon 113	TCE	PCE	1,1-DCE	Chloroform	1,1,1-TCA	Freon 11
38	95	NS	NS	P	P	P	P	P	P	P	P
38	110	10/25/2005	SVW38-VPF-092	ND	ND	ND	ND	ND	ND	ND	ND
38	125	NS	NS	P	P	P	P	P	P	P	P
38	140	NS	NS	P	P	P	P	P	P	P	P
38	155	NS	NS	P	P	P	P	P	P	P	P
38	170	10/25/2005	SVW38-VPJ-093	ND	ND	ND	ND	ND	ND	ND	ND
39	20	10/26/2005	SVW39-VPA-102	ND	ND	ND	ND	ND	ND	ND	ND
39	35	NS	NS	P	P	P	P	P	P	P	P
39	50	NS	NS	P	P	P	P	P	P	P	P
39	70	NS	NS	P	P	P	P	P	P	P	P
39	85	10/26/2005	SVW39-VPE-103	ND	ND	ND	ND	ND	ND	ND	ND
39	100	10/26/2005	SVW39-VPF-104	ND	ND	**1.9**	ND	ND	ND	ND	ND
39	110	10/26/2005	SVW39-VPG-105	ND	ND	ND	ND	ND	ND	ND	ND
39	120	NS	NS	P	P	P	P	P	P	P	P
39	130	10/26/2005	SVW39-VPI-106	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
Dup: Duplicate Sample
ND: Not Detected (Above the PQL)
PCE: Tetrachloroethene
1,1-DCE: 1,1-Dichloroethene
CCl_4: Carbon Tetrachloride
NS: Not Sampled
PQL: Practical Quantitation Limit
1,1,1-TCA: 1,1,1-Trichloroethane
Ft bgs: Feet Below Grade Surface
P: Sampling Port Plugged, Unable to Purge or Blow
TCE: Trichloroethene
µg/L: Micrograms per Liter (Vapor)

JPL Facility

Site Boundary

VIRO RD.

OVE DR.

VE-01
VE-02
VE-03
VE-04

N

0 500 1,000

APPROXIMATE SCALE IN FEET

EXPLANATION

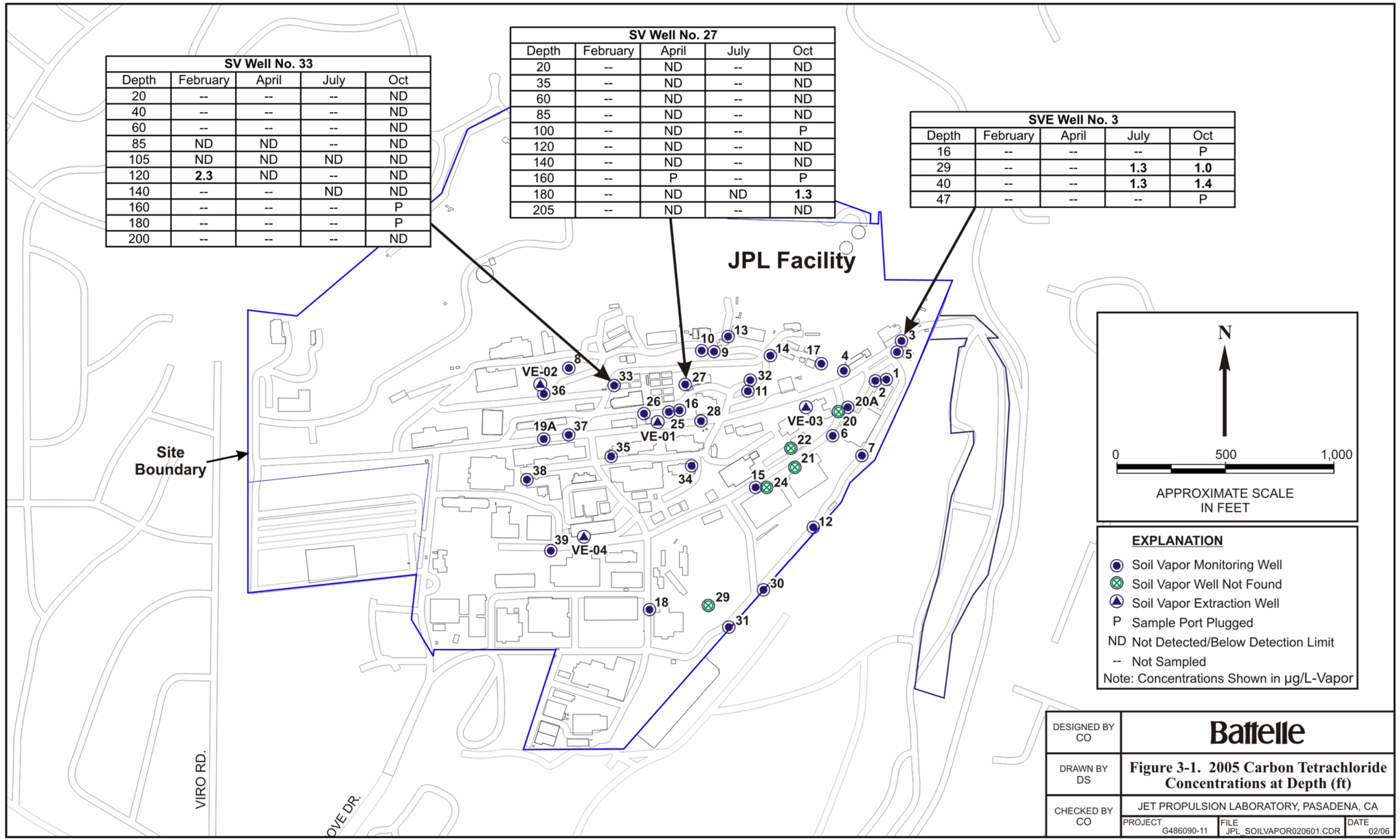
- Soil Vapor Monitoring Well
- Soil Vapor Well Not Found
- Soil Vapor Extraction Well

DESIGNED BY CO	Battelle
DRAWN BY DS	**Figure 1-1. Location of Soil Vapor Monitoring Wells**
CHECKED BY CO	JET PROPULSION LABORATORY, PASADENA, CA
PROJECT G486090-11	FILE JPL_SOILVAPOR020601.CDR
DATE 02/06	

SV Well No. 33				
Depth	February	April	July	Oct
20	--	--	--	ND
40	--	--	--	ND
60	--	--	--	ND
85	ND	ND	--	ND
105	ND	ND	ND	ND
120	**2.3**	ND	--	ND
140	--	--	ND	ND
160	--	--	--	P
180	--	--	--	P
200	--	--	--	ND

SV Well No. 27				
Depth	February	April	July	Oct
20	--	ND	--	ND
35	--	ND	--	ND
60	--	ND	--	ND
85	--	ND	--	ND
100	--	ND	--	P
120	--	ND	--	ND
140	--	ND	--	ND
160	--	P	--	P
180	--	ND	ND	**1.3**
205	--	ND	--	ND

SVE Well No. 3				
Depth	February	April	July	Oct
16	--	--	--	P
29	--	--	**1.3**	**1.0**
40	--	--	**1.3**	**1.4**
47	--	--	--	P



EXPLANATION

- Soil Vapor Monitoring Well
- Soil Vapor Well Not Found
- Soil Vapor Extraction Well
- P Sample Port Plugged
- ND Not Detected/Below Detection Limit
- -- Not Sampled

Note: Concentrations Shown in µg/L-Vapor

DESIGNED BY CO	Battelle	
DRAWN BY DS	**Figure 3-1. 2005 Carbon Tetrachloride Concentrations at Depth (ft)**	
CHECKED BY CO	JET PROPULSION LABORATORY, PASADENA, CA	
	PROJECT G486090-11	FILE JPL_SOILVAPOR020601.CDR / DATE 02/06

SV Well No. 10				
Depth	February	April	July	Oct
20	P	P	--	P
35	**3.2**	ND	--	**2.2**
50	P	P	--	P
69	P	P	--	ND

SV Well No. 38				
Depth	February	April	July	Oct
25	--	P	--	ND
45	--	P	--	P
65	--	P	--	P
80	--	ND	--	ND
95	--	P	--	P
110	--	ND	--	ND
125	--	P	--	P
140	--	P	--	P
155	--	P	--	P
170	--	ND	--	ND

SV Well No. 39				
Depth	February	April	July	Oct
20	--	ND	--	ND
35	--	P	--	P
50	--	ND	--	P
70	--	P	--	P
85	--	ND	--	ND
100	--	**3.3**	**2.5**	ND
110	--	ND	--	ND
120	--	P	--	P
130	ND	ND	ND	ND

JPL Facility

Site Boundary

VIRO RD.

VE-01 VE-02 VE-03 VE-04

N

0 500 1,000

APPROXIMATE SCALE IN FEET

EXPLANATION

- Soil Vapor Monitoring Well
- Soil Vapor Well Not Found
- Soil Vapor Extraction Well
- P Sample Port Plugged
- ND Not Detected/Below Detection Limit
- -- Not Sampled

Note: Concentrations Shown in µg/L-Vapor

DESIGNED BY CO	Battelle	
DRAWN BY DS	**Figure 3-2. 2005 Freon 113 Concentrationsat Depth (ft)**	
CHECKED BY CO	JET PROPULSION LABORATORY, PASADENA, CA	
	PROJECT G486090-11	FILE JPL_SOILVAPOR020601.CDR / DATE 02/06

SV Well No. 38				
Depth	February	April	July	Oct
25	--	P	--	ND
45	--	P	--	P
65	--	P	--	P
80	--	ND	--	ND
95	--	P	--	P
110	--	ND	--	ND
125	--	P	--	P
140	--	P	--	P
155	--	P	--	P
170	--	ND	--	ND

SV Well No. 4				
Depth	February	April	July	Oct
11	P	P	--	P
20	**19**	**18**	**11.0**	**9.5**
35	P	P	--	P
56	P	P	P	P

SV Well No. 39				
Depth	February	April	July	Oct
20	--	ND	--	ND
35	--	P	--	P
50	--	ND	--	ND
70	--	P	--	P
85	--	ND	--	ND
100	--	**3.7**	**2.5**	**1.9**
110	--	ND	--	ND
120	--	P	--	P
130	ND	ND	ND	ND

JPL Facility

Site Boundary

VE-01 VE-02 VE-03 VE-04

N

0 500 1,000

APPROXIMATE SCALE IN FEET

EXPLANATION

- Soil Vapor Monitoring Well
- Soil Vapor Well Not Found
- Soil Vapor Extraction Well
- P Sample Port Plugged
- ND Not Detected/Below Detection Limit
- -- Not Sampled

Note: Concentrations Shown in µg/L-Vapor

DESIGNED BY CO	Battelle	
DRAWN BY DS	**Figure 3-3. 2005 Trichloroethene Concentrations at Depth (ft)**	
CHECKED BY CO	JET PROPULSION LABORATORY, PASADENA, CA	
	PROJECT G486090-11	FILE JPL_SOILVAPOR020601.CDR / DATE 02/06

SV Well No. 33				
Depth	February	April	July	Oct
20	--	--	--	ND
40	--	--	--	ND
60	--	--	--	ND
85	ND	ND	--	ND
105	ND	ND	ND	ND
120	**1.3**	ND	--	**1.8**
140	--	--	ND	ND
160	--	--	--	P
180	--	--	--	P
200	--	--	--	ND

JPL Facility

Site Boundary

VIRO RD.

VE-01 VE-02 VE-03 VE-04

N

0 500 1,000

APPROXIMATE SCALE IN FEET

EXPLANATION

- Soil Vapor Monitoring Well
- Soil Vapor Well Not Found
- Soil Vapor Extraction Well
- P Sample Port Plugged
- ND Not Detected/Below Detection Limit
- -- Not Sampled

Note: Concentrations Shown in µg/L-Vapor

DESIGNED BY CO	Battelle		
DRAWN BY DS	**Figure 3-4. 2005 1,1-Dichloroethene Concentrations at Depth (ft)**		
CHECKED BY CO	JET PROPULSION LABORATORY, PASADENA, CA		
	PROJECT G486090-11	FILE JPL_SOILVAPOR020601.CDR	DATE 02/06

SV Well No. 10

Depth	February	April	July	Oct
20	P	P	--	P
35	**3.2**	ND	--	**2.2**
50	P	P	--	P
69	P	P	--	ND

SV Well No. 17

Depth	February	April	July	Oct
12	P	P	--	P
24	ND	9.1	ND	P
36	P	P	--	P

SV Well No. 4

Depth	February	April	July	Oct
11	P	P	--	P
20	**19**	**18**	**11.0**	**9.5**
35	P	P	--	P
56	P	P	P	P

SVE Well No. 3

Depth	February	April	July	Oct
16	--	--	--	P
29	--	--	**1.3**	**1.0**
40	--	--	**1.3**	**1.4**
47	--	--	--	P

SV Well No. 27

Depth	February	April	July	Oct
20	--	92	--	**44**
35	--	81	--	**59**
60	--	ND	--	**4.0**
85	--	ND	--	ND
100	--	ND	--	P
120	--	ND	--	ND
140	--	ND	--	ND
160	--	P	--	P
180	--	ND	ND	**1.3**
205	--	ND	--	ND

SV Well No. 33

Depth	February	April	July	Oct
20	--	--	--	ND
40	--	--	--	ND
60	--	--	--	ND
85	ND	ND	--	ND
105	ND	ND	ND	ND
120	**3.6**	ND	--	**1.8**
140	--	--	ND	ND
160	--	--	--	P
180	--	--	--	P
200	--	--	--	ND

SV Well No. 38

Depth	February	April	July	Oct
25	--	P	--	ND
45	--	P	--	P
65	--	P	--	P
80	--	ND	--	ND
95	--	P	--	P
110	--	ND	--	ND
125	--	P	--	P
140	--	P	--	P
155	--	P	--	P
170	--	ND	--	ND

SV Well No. 39

Depth	February	April	July	Oct
20	--	ND	--	ND
35	--	P	--	P
50	--	ND	--	P
70	--	P	--	P
85	--	ND	--	ND
100	--	**7.0**	**5.0**	**1.9**
110	--	ND	NS	ND
120	--	P		P
130	ND	ND	ND	ND

JPL Facility

VIRO RD.

VE-01 VE-02 VE-03 VE-04

N

0 500 1,000

APPROXIMATE SCALE IN FEET

EXPLANATION

- Soil Vapor Monitoring Well
- Soil Vapor Well Not Found
- Soil Vapor Extraction Well
- P Sample Port Plugged
- ND Not Detected/Below Detection Limit
- -- Not Sampled

Note: Concentrations Shown in µg/L-Vapor

DESIGNED BY CO	Battelle
DRAWN BY DS	**Figure 3-5. 2005 Total VOC Concentrations at Depth (ft)**
CHECKED BY CO	JET PROPULSION LABORATORY, PASADENA, CA
PROJECT G486090-11	FILE JPL_SOILVAPOR020601.CDR DATE 02/06